The (New) Midwest Economy Index
Method, Features, and Uses

Midwest Economy: Outlook for 2012 and Beyond
December 1, 2011

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Overview

- **The Midwest Economy Index (MEI)**
  - Measure of Seventh District nonfarm business activity
  - Analogue of Chicago Fed National Activity Index (CFNAI)
  - Geographic and sectoral breakdown of sources of growth

- **Useful *monthly* measure of Midwest economic growth**
  - ◆ **Incorporates 134 state and regional indicators**
  - ◆ **Both monthly and quarterly**
  - ◆ **Employment, production, consumption & income**

- **Closely related to state real GDP measures**
  - ◆ **Highly correlated with Seventh District GSP growth**
  - ◆ **Can be used to make quarterly predictions like for GDP**

What is the Midwest Economy Index?

- **Weighted average of 134 state/regional indicators of activity**

- **Weights capture relative importance to historical fluctuations**

- **Smoothed measure – equivalent to 3-month MA**

- **4 broad sectors of the Midwest economy:**
  - Services: *e.g. Payroll employment by industry*
  - Manufacturing: *e.g. CFMMI and regional PMI*
  - Construction and mining: *e.g. Housing starts and permits*
  - Consumer spending: *e.g. Personal income, Retail sales*

- **5 states of the 7th Federal Reserve District**
  - Illinois, Indiana, Iowa, Michigan, and Wisconsin

Methodology

- **Index is a weighted average of the transformed indicators**

$$I_t = w_1 \times x_{1,t} + w_2 \times x_{2,t} + \cdots + w_N \times x_{N,t}$$

where the w's are the weights

- **The weights minimize the sum of squared differences between the indicators and the index**

- **The basis of this procedure is *Principal Components Analysis***
  - Mixed frequency data makes it a little more complicated

- **Similar to "factor" analysis: Stock and Watson (2002)**
  - Assume there is an underlying "common factor" which is the overall activity of the Midwest economy

Interpreting the MEI

- **Interprets Midwest growth relative to its trend**

- **Index has a mean of zero and a standard deviation of 1**

- **Simple interpretation… a "Goldilocks" index**
  - A positive value indicates above-average growth (expansions)
  - A negative value indicates below-average growth (contractions)

- **"Relative" MEI compares the MEI and CFNAI**
  - Midwest and U.S. trend growth not the same
  - Midwest and U.S. growth don't have the same volatility

- **Relative MEI = 1 implies Midwest growth is**
  - 1 standard deviation higher than typically suggested by CFNAI

Regional Economic Activity
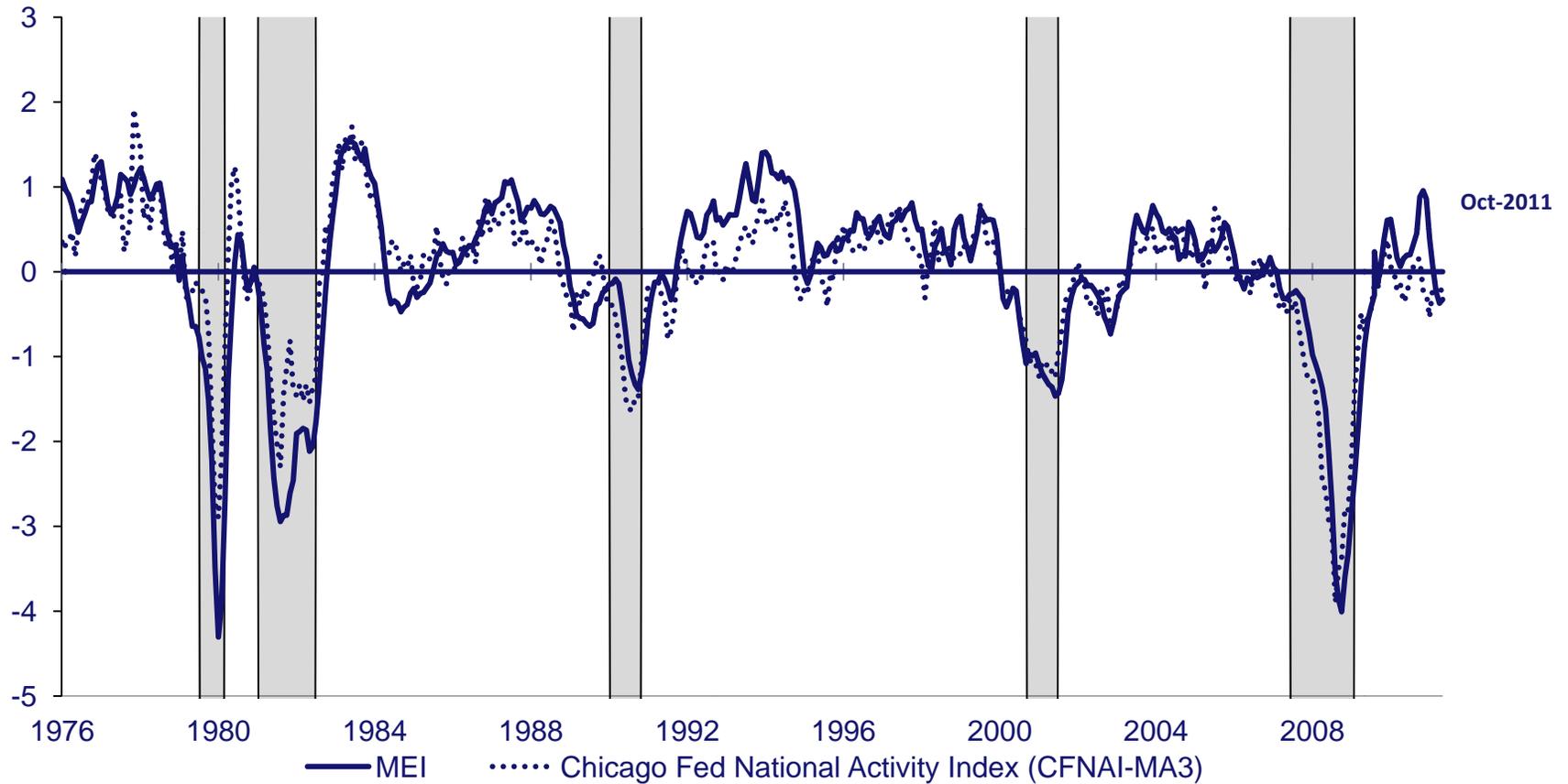
Regional and National Activity Indexes

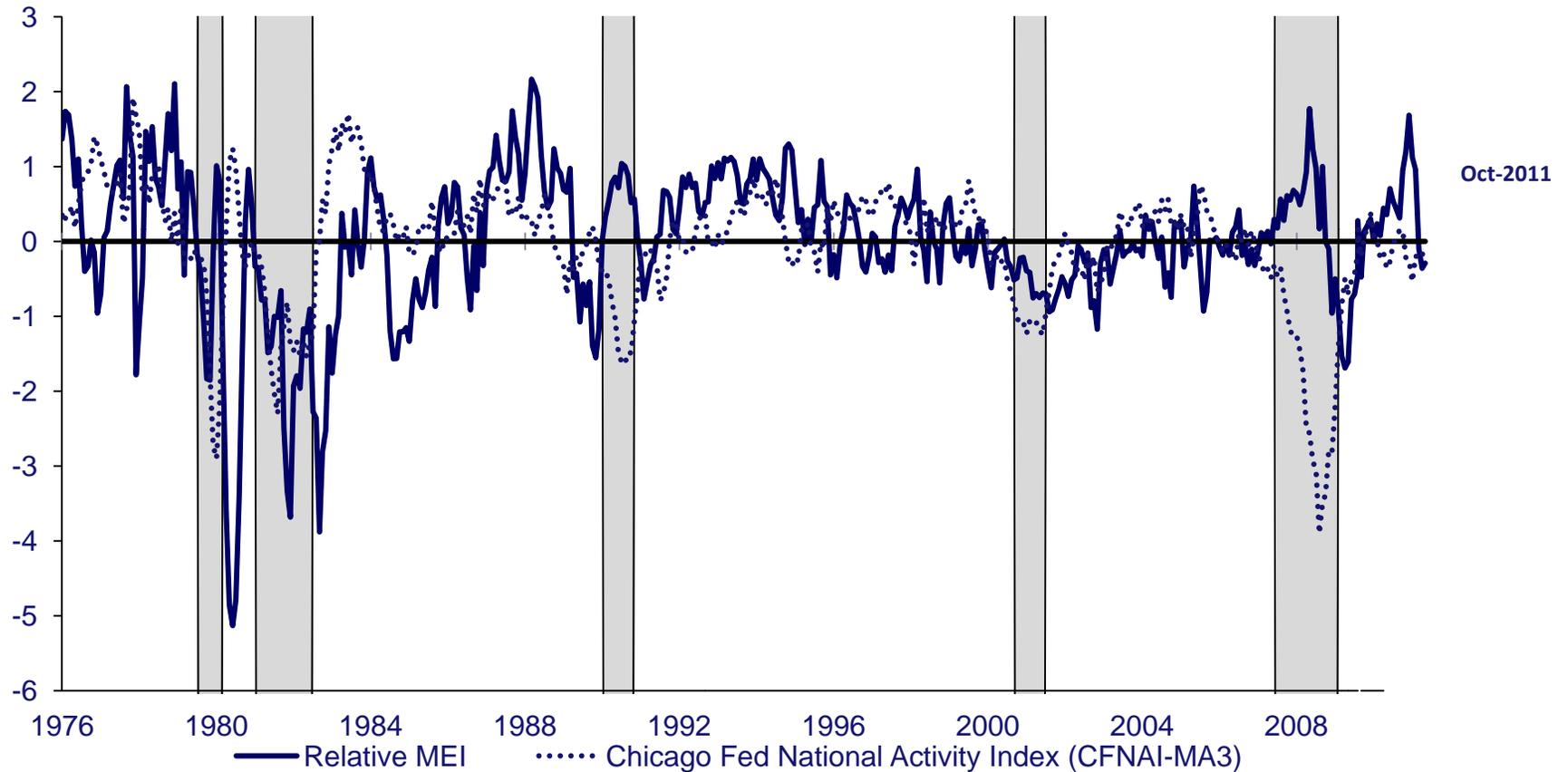(standard deviation from trend, 3-month average)

Shading corresponds with NBER recessions

Regional Economic Activity

Regional and National Activity Indexes
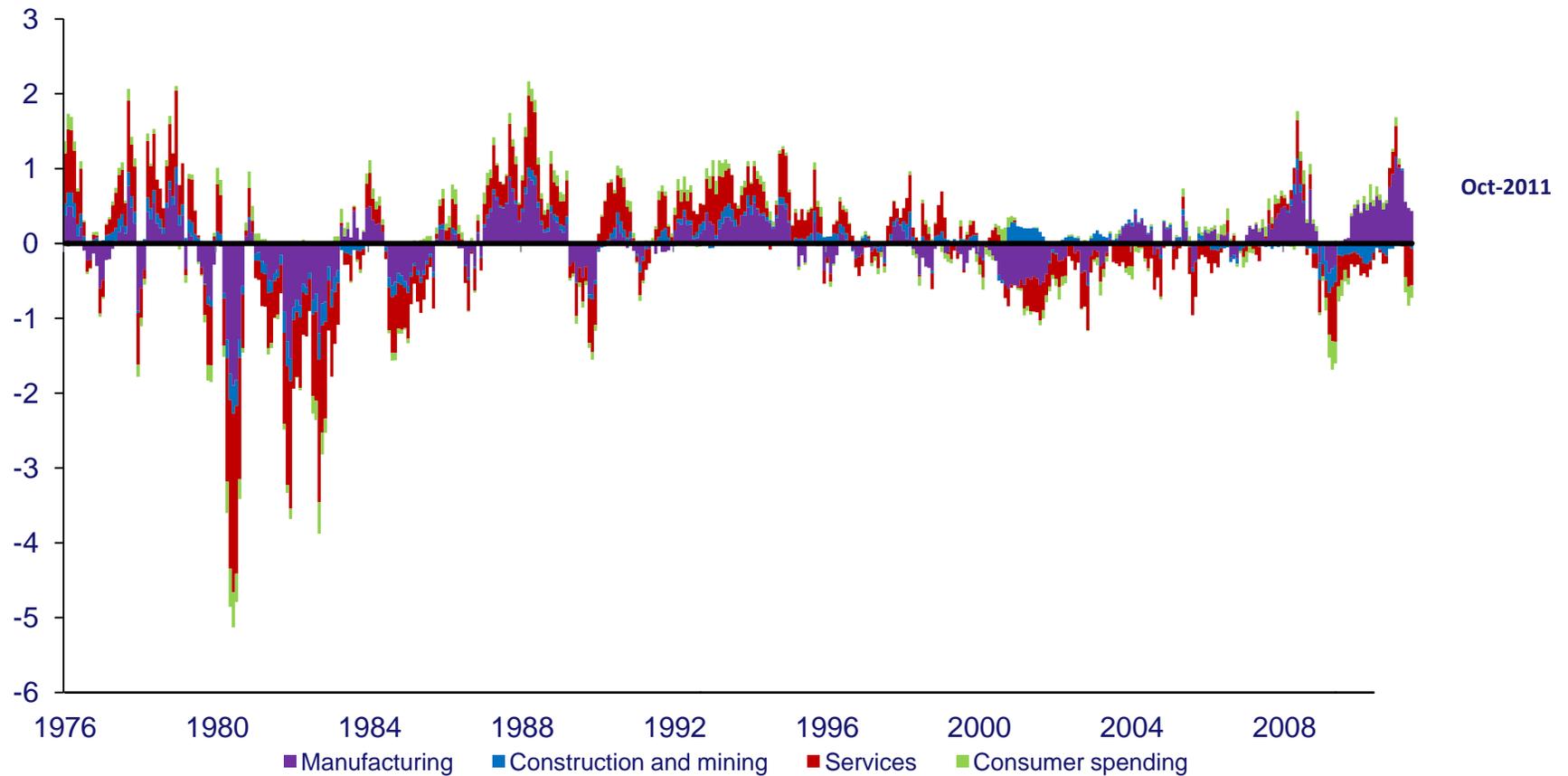(standard deviation from trend, 3-month average)

Oct-2011

Relative MEI ······ Chicago Fed National Activity Index (CFNAI-MA3)

Shading corresponds with NBER recessions

Regional Economic Activity

Sector Contributions to the Relative MEI
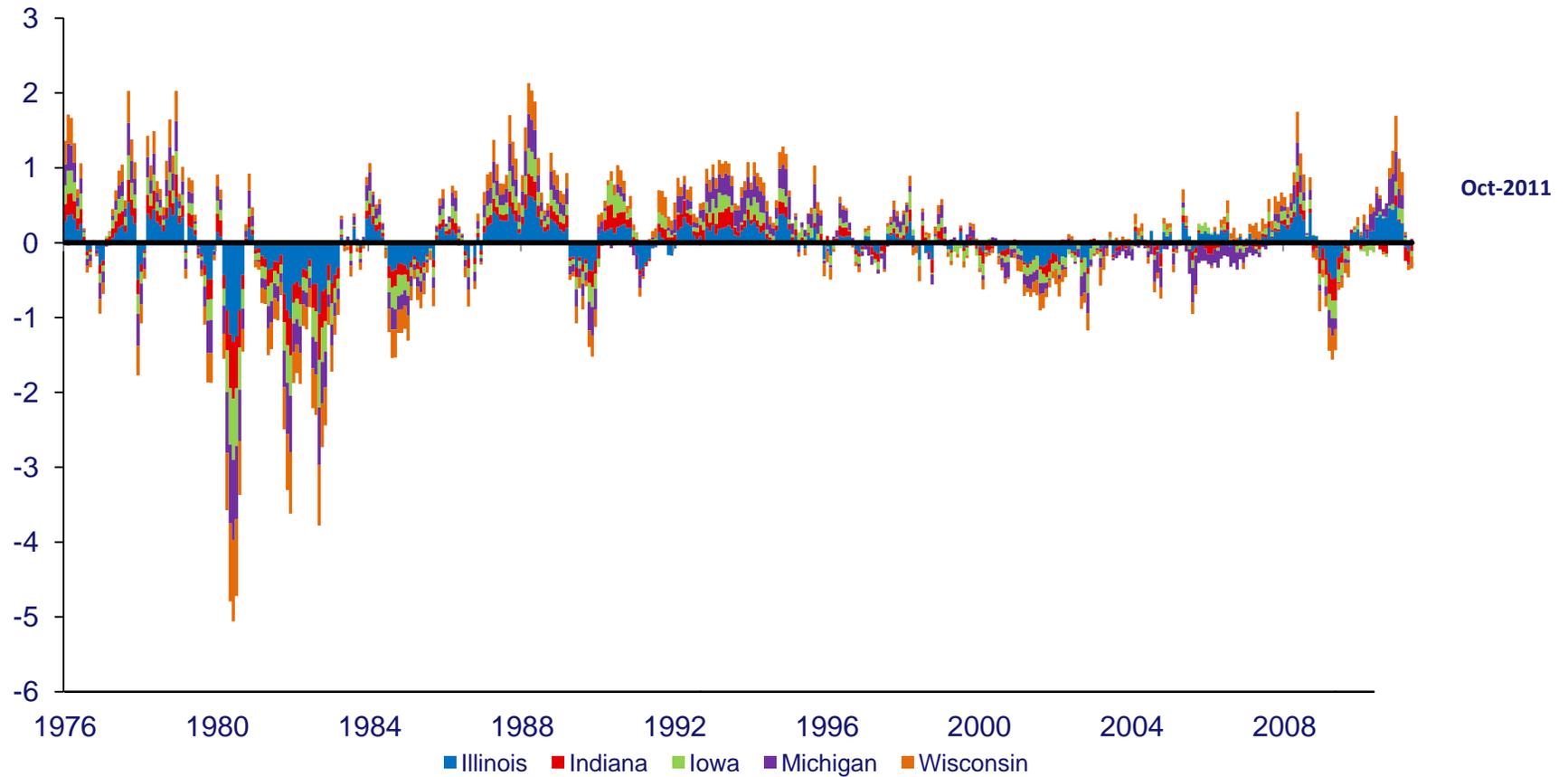(standard deviation from trend, 3-month average)

Regional Economic Activity

Geographic Contributions to the Relative MEI

(standard deviation from trend, 3-month average)

Legend: Illinois, Indiana, Iowa, Michigan, Wisconsin

Oct-2011

October 2011 MEI Release: Nov 30th, 2011

October 2011

MEI

	Illinois	Indiana	Iowa	Michigan	Wisconsin	Regional	
Manufacturing	0.07	0.00	0.03	0.04	0.06	0.00	0.20
Construction	-0.06	-0.01	-0.01	-0.04	-0.05	-0.01	-0.18
Services	-0.02	-0.04	-0.05	-0.01	-0.06	0.00	-0.18
Consumer	-0.06	-0.02	-0.03	-0.04	-0.03	0.01	-0.16
	-0.07	**-0.08**	**-0.06**	**-0.04**	**-0.08**	**0.00**	**-0.33**

Relative MEI

	Illinois	Indiana	Iowa	Michigan	Wisconsin	Regional	
Manufacturing	0.15	0.01	0.06	0.10	0.09	0.01	0.43
Construction	-0.05	0.04	0.00	-0.01	-0.05	0.00	-0.07
Services	-0.05	-0.15	-0.09	-0.01	-0.18	0.00	-0.49
Consumer	-0.05	-0.01	-0.03	-0.04	-0.03	-0.01	-0.17
	0.01	**-0.11**	**-0.07**	**0.04**	**-0.16**	**0.00**	**-0.29**

Relationship with GSP Growth

MEI vs. Wisconsin GSP growth rate
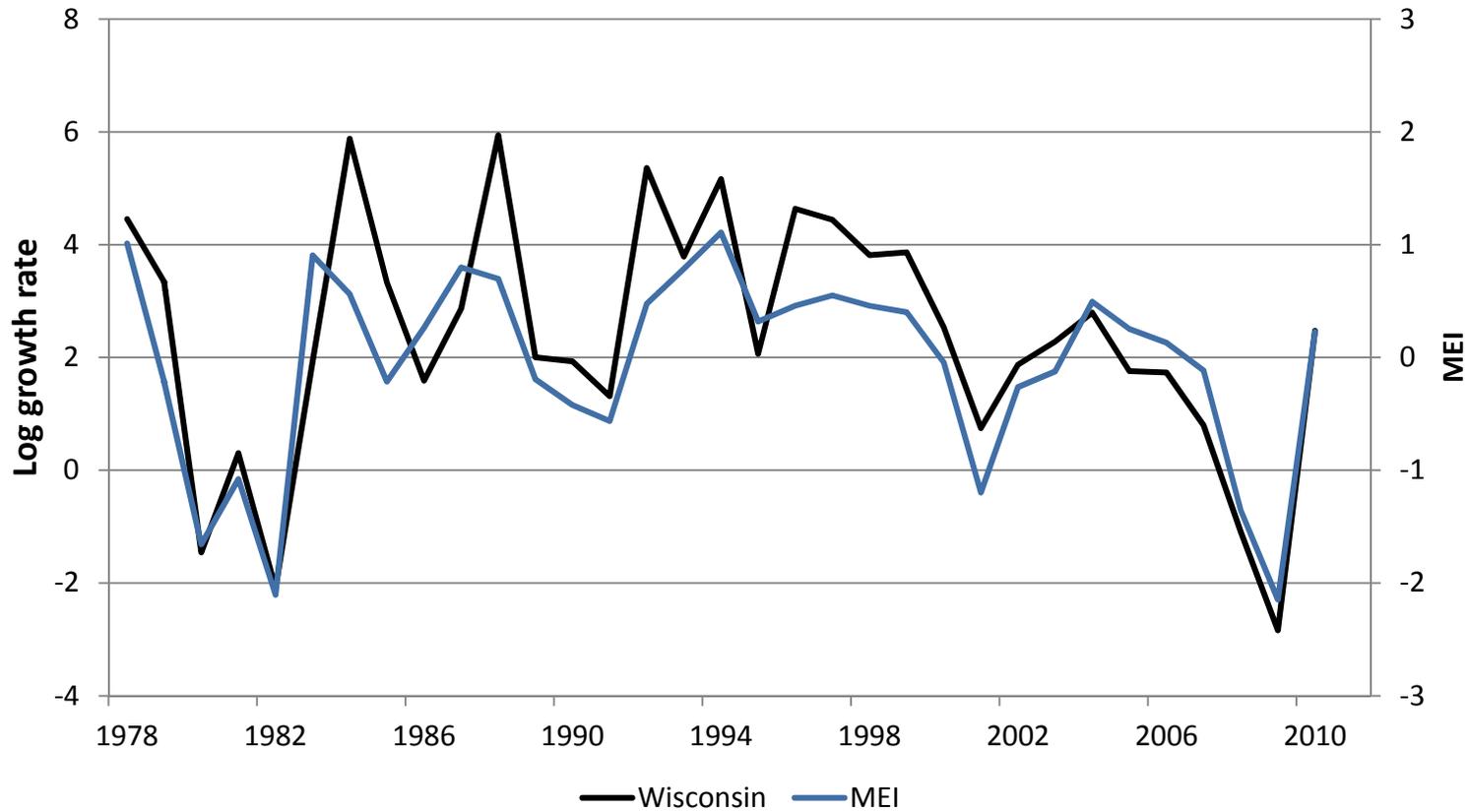
Correlation Coefficients

Illinois	Indiana	Iowa	Michigan	Wisconsin
0.84	0.86	0.60	0.83	0.87

Regression Model and Results

Regression Results	Illinois	Indiana	Iowa	Michigan	Wisconsin
Constant	-0.2	0.5	-0.2	-0.4	0.8
Real GDP Growth	0.8**	0.4*	0.6	0.3	0.5**
MEI	0.2	1.0**	0.1	1.3**	0.7*
Relative MEI	0.6**	0.4	0.7	-0.1	0.3
Lagged Real GSP Growth	-0.1	-0.2**	0.0	-0.4**	0.0
Real Personal Income Growth	0.1	0.6**	0.5**	1.0**	0.2
RMSE	0.7	1.1	2.1	1.5	0.8
Observations	32	32	32	32	32
Robust standard errors, clustered by year: ** 1%, * 5% significance					

Decomposition of Variance	Illinois	Indiana	Iowa	Michigan	Wisconsin
National Factors	67%	10%	19%	2%	53%
Regional Factors	28%	22%	15%	11%	39%
State Factors	5%	68%	66%	87%	8%

GSP Growth Forecasts Through 2011:Q2
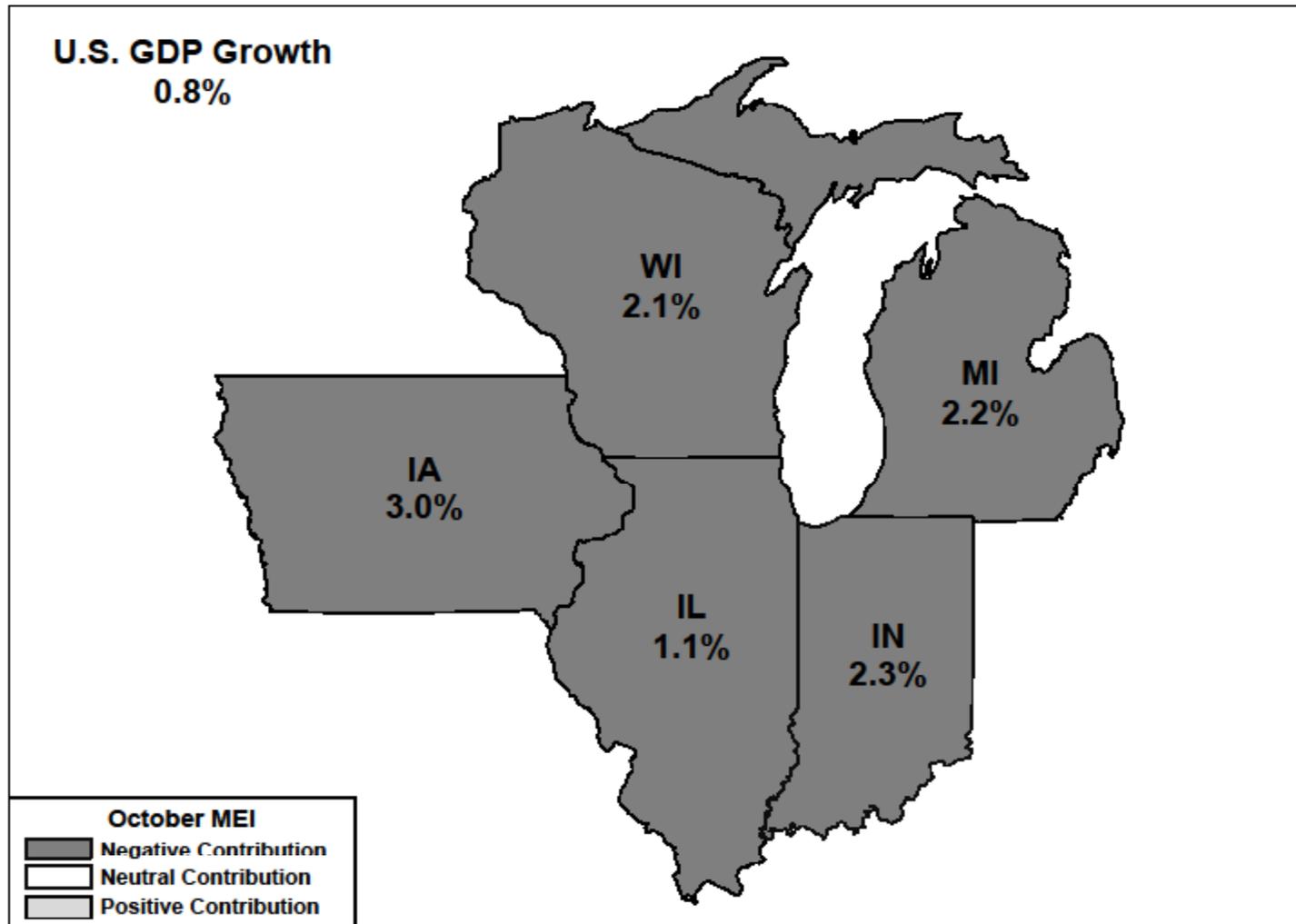
Summary

- **See www.chicagofed.org/mei**

  - List of data series

  - Recent values of the weights

  - Articles describing the statistical methodology and applications

- **Next MEI release December 29th for November data**

  - 2011:Q3 GSP estimates (schedule follows final GDP release)

- **Email alerts available at
  http://www.chicagofed.org/webpages/utilities/subscribe.cfm**